

Communication and Collaboration Keep San Francisco VA Medical Center Project on Track

Regional contract is used to save money, reduce procurement time, and obtain utility rebate

Overview

The Veterans Affairs Medical Center in San Francisco is saving almost 3 million kilowatt-hours of electricity, more than 70,000 therms of natural gas, and more than \$500,000 annually. The energy savings are enough to power 400 homes and supply natural gas to more than 100 homes each year in California. These savings were realized by taking advantage of Super Energy Savings Performance Contracts (Super ESPCs) developed by the U.S. Department of Energy's Federal Energy Management Program (FEMP).

Staff at the Veterans Affairs Medical Center (VAMC) avoided procurement time and expense by negotiating with Johnson Controls, one of FEMP's approved energy services contractors in the western region.

Reduce Utility Bills with Energy Savings Performance Contracts

The Department of Energy's Federal Energy Management Program (FEMP) helps government agencies use Energy Savings Performance Contracts (ESPCs) to finance many kinds of energy efficiency projects.

Benefits of ESPCs:

- New equipment
- No up-front costs
- Energy and water savings
- Lower utility bills
- Improved reliability and load management
- Better air quality.

FEMP has developed streamlined "Super ESPCs" so that Federal agencies can contract with preselected energy service companies to implement projects. FEMP's six Regional Super ESPCs allow agencies in a particular U.S. region to place delivery orders with the preselected companies. Technology-Specific Super ESPCs can help any facility in the country obtain access to financing for certain advanced energy technologies.

Advantages of Super ESPCs:

- Prequalified, competitively selected energy service companies
- Expedited contracting process
- Ability to combine multiple projects or facilities in one contract
- DOE's technical and contracting expertise.

For more information, please call 1-800-363-3732 and see FEMP's Web site (<http://www.eren.doe.gov/femp/financing/escp.html>).

Johnson Controls, together with VAMC, evaluated areas of high energy consumption and customized the retrofits to the specific needs of the facility. The retrofits included

- Replacing boilers with a steam production system
- Evaluating the energy management control system, upgrading controls, and installing a life safety supervision system
- Replacing 25-horsepower air compressors with 40-horsepower rotary air compressors
- Replacing corroded cooling coils
- Replacing lamps, ballasts, and fixtures with high-efficiency models and installing lighting controls
- Replacing, when cost effective, electric motors.

The San Francisco VA Medical Center is saving more than \$500,000 and almost 3 million kWh every year through a retrofit financed by FEMP's Super ESPC Program.



Under FEMP's Super ESPC, energy service companies assume the capital costs of installing energy and water conservation equipment and renewable energy systems. In this case, Johnson Controls invested more than \$4.7 million and will be repaid during the life of the 19-year project from yearly energy savings.

Background

The VAMC is located on the historic site of Fort Miley, overlooking the Pacific Ocean and the Golden Gate Bridge in San Francisco. With 28



ESPC Case Study

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Office of Energy Efficiency and Renewable Energy



buildings and 1 million square feet, the facility uses a considerable amount of energy. In 1997, VAMC's energy costs totaled almost \$1.8 million.

To comply with legislative direction and executive orders, the VAMC had been working to reduce their energy consumption significantly. Though VAMC staff had been working hard toward this goal, Chief of Facilities Dirk Minnema said they weren't going to reach it without a large project involving a substantial capital investment, "Some of our infrastructure was aging and needed to be replaced, and these replacements were going to be pretty expensive," said Minnema. "Through networking with other facility managers, we started thinking about the ESPC program—and found out that it would require no capital up front from us."

Project Summary

Before the VAMC made improvements under the ESPC, the facility was using 25-year-old, high-pressure steam boilers. The retrofit team replaced the boilers with natural-gas-fired oil heaters to produce steam, thereby increasing system efficiency by about 5%. Though the new system requires additional electricity, it does not require a 24-hour staff to operate it because there are no fired high-pressure vessels. Using this system results in a net energy savings and greater safety.

In addition, the Super ESPC proposal from Johnson Controls gave the VAMC an opportunity to address many less critical areas in the facility's infrastructure that were aging or needed maintenance. The energy management control system was upgraded with a supervision system. The team also agreed to replace air compressors, corroding cooling coils, and, when cost-effective, electric motors.

The task that provided the most energy savings was the lighting retrofit. More than 25,000 lightbulbs were exchanged for high-efficiency bulbs, and lamps and ballasts were replaced with higher-efficiency models. Lighting controls were installed in areas where the need for light was not continuous.

Benefits of Using the FEMP Super ESPC Program

By using the FEMP Super ESPC program, VAMC was able to complete its energy-saving retrofit more quickly and cost effectively.

"The ESPC program allows these types of facilities to take no risks with a project," said Mike Manley of Johnson Controls. "The bottom line is that the project was a budget-neutral transaction." During the 19-year contract, energy cost savings are used to pay the cost of the investment. After that time, the VAMC retains any additional savings.

Support from FEMP can make the delivery order process more manageable. Technical and contracting experts are available to support the project,

Action	Savings per year			Payback (years)
	Electricity (kWh)	Gas (therms)	Dollar savings	
Boiler replacement	303,902	71,073	\$311,702	8.4
Controls upgrade	156,253	81,880	43,552	7.7
Air compressor replacement	61,093	—	12,565	18.1
Cooling coils replacement	210,273	—	14,719	3.0
Lighting improvements	1,733,751	—	128,098	7.2
Motor efficiency upgrade	258,400	—	18,088	3.6
Total	2,723,672	152,953	\$528,724	8.4*

*Aggregate

resulting in more knowledgeable participants and a solid technical approach. With FEMP's help, it took only 7 months to award the delivery order.

Lessons Learned

Communication, along with the active participation of all parties, was the key to keeping this ESPC project on schedule and within budget. Team members went into the process willing to consider all options and different perspectives.

"Both sides were willing to negotiate openly to make things work," said Tim Kehrli, Super ESPC project facilitator. "There were no punches pulled—so when the proposal was delivered, there were no surprises."

Meeting the schedule also had another benefit. VAMC's utility, Pacific Gas & Electric, offered a \$75,000 rebate for completion of the lighting retrofit within an established timeframe.

Looking Ahead

Johnson Controls is developing a second delivery order to address additional cost-savings opportunities. Cost-saving measures include cooling coil replacement, steam distribution system improvements, low-flow fixtures, and irrigation system controls. These measures will save an estimated \$173,000 in energy, water, and related operating expenses annually.

For More Information

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